

CHEE 400B

Environmental Engineering Laboratory II

Spring 20XX

University of Arizona

Instructor: Byron Hempel

byronhempel@email.arizona.edu

Office Hours: By appointment

Harshbarger 105D

Class time: Day / Time tbd

Day / Time tbd

Location tbd

Location tbd

Credits: 1

Course Description and Objective:

This laboratory experience is the second laboratory course for senior Environmental Engineering Students. The course focuses on unit operations and processes commonly applied in environmental engineering and supports fundamental concepts developed in required courses for Environmental Engineering majors. The first laboratory course studies reverse osmosis, advanced oxidative processes, and continuous stir tank reactors. This laboratory course will study enzyme kinetics, air absorption of ethanol, and various hydraulic topics. The course spans half a semester with a 1-hour lecture and 3-hour lab each week.

Textbook:

None. Required and optional readings and videos will be provided through D2L.

Technology:

You are welcome to use a laptop in both class lecture and in the laboratory, but you are encouraged to refrain from using your laptop in the labs. If you need a laptop, the library offers three-day laptop rental programs. For more information, as well as looking at other rentals the library offers, follow the link [here: http://new.library.arizona.edu/tech/borrow](http://new.library.arizona.edu/tech/borrow).

Weekly Classroom Structure and Flow / Group Work:

In general, we will have an introductory lecture on Mondays of each week. A lab experiment will follow on Wednesday. The lab is expected to take one day to complete if performed efficiently; two days are planned in our course calendar in the event of needing more time to complete a lab. If you collect all the necessary data on the first day, you will not need to be in the lab the second day of the experiment.

You will be placed into teams of 3 or 4 students for this course. At this point in your academic careers, you should have been exposed to working in groups. As your upper division classes and future careers/internships have and will show, engineering is about collaboration and being

able to work in a group. I want you all to develop the maturity to work equally on a project and delegate tasks accordingly. If there is an issue, I will step in if requested or necessary, but will strongly suggest you all to work out conflicts in your groups. I believe that you can all work together to support each other on your path towards graduation.

Schedule:

	Lecture		Lab		Items Due	
Week	Date	Topic	Date	Topic	Date	Topic
1			xxx	Intro to Course		None
2	xxx	MLK Day	xxx	Lab Introduction and Safety	xxx	Safety Quiz
3	xxx	Intro to Topics	xxx	Absorption Lab	xxx	PLQ
4	xxx	Writing a Lab Report	xxx		xxx	Lab Report
5	xxx	Discussion of Labs	xxx	Enzyme Lab	xxx	PLQ
6	xxx	Discussion of Labs	xxx		xxx	Lab Report
7	xxx	Discussion of Labs	xxx	Hydraulics Lab	xxx	PLQ
8	xxx	Review of Material	xxx			None
9	xxx	Spring Break	xxx	Spring Break	xxx	Lab Report
10	xxx	Final Exam	xxx	Final Exam	xxx	Survey of Course

Course Grading Policies:

Grade Item	Percent of Grade	Individual	Group
Safety Quiz	2%	X	
Pre-Lab quizzes	9% (3% each)	X	
Lab Reports (3 total reports)	66% (22% each)		X
Final Exam	22%	X	X
Exit Survey of Course	1%	X	

Late Policy

Timeliness is an important factor when working in industry. Assignments will follow an exponential decay function for the grade if submitted late ($Grade_t = Grade_i * 0.5^t$; t = days late). They will not be accepted if more than 3 days late.

Safety Quiz – 2%

Safety is a core pillar to our department's student outcomes. We want you all to have a laboratory experience without any health or safety concerns. As such, there will be an online D2L quiz over safety following the safety portion of the lab.

Pre-lab Quizzes – 9% (3% each)

To help the class prepare for the laboratory assignments, we will need everyone to be on roughly the same page coming into lab. For me to help get everyone to the same background information, I am assigning pre-lab quizzes to make the classroom more efficient. You have three attempts, so if you do not succeed at first, keep trying!

Lab Reports – 66% (22% each)

Three lab reports over the different topics will be due the Sunday after the second day the lab is conducted. Reports will be 22% each.

Final Exam – 22%

A final exam will be given covering all of the different topics covered in the lab, including safety. A review lecture will be given the lecture before the final exam.

Exit survey of course – 1%

Every course is ultimately a collaboration between instructor and students. As your instructor, I strive to adjust the course to your needs and improve the course based on your feedback. Help me make sure to keep what promotes your learning and to adjust what doesn't.

Grading Rubric:

This course will be graded on a straight scale as follows:

<u>Total percentage of points earned</u>	<u>Final Grade</u>
90 - 100 %	A
80 - 89 %	B
70 - 79 %	C
60 - 69 %	D
< 60%	E

Teaching Philosophy

I truly believe in your success as a student and adapting my instruction to ensure your success. Below you will find several different instructional methods to help me accomplish my goal:

1. Everyone has the right and ability to be successful in this course. As a future engineer, I want to provide a level of rigor that will promote you to be the best engineer you can be as you explore the different concepts of this lab.
2. I vary my teaching methods to ensure that our courses are accessible to all students. Feel free to give me any feedback onto what works or does not work for you.
3. I believe in transparency and open communication, meaning I wish to be as clear as possible in class and give you insight into my teaching decisions. I want my classroom to be one where you can feel free to express your own ideas and thoughts to contribute to

the wider discussions. As the laboratory experiments continue to evolve over time, I appreciate feedback to make them better.

4. Foremost, I believe in student-centered active learning. Literature through education-based teaching practices support nearly every aspect and decision in this course. If you have any questions or comments about the theory and practice of different methods, once again, I would love your feedback. Just as I want you all to develop your engineering skills over time, I too want to continuously improve this course to be the best it can be.

Feeling stuck or like you could be studying more effectively?

You're not alone! Many students don't fully know their ideal study behaviors until later in their college careers. If you'd like to find additional resources concerning research-proven best study practices, check out the supplemental section in our D2L page. You will find many different resources there to help you get started on your path to your ideal student self!

Scholastic Dishonesty Policy: Integrity is expected of every student in all academic work. Scholastic dishonesty will not be tolerated. Please refer to the UA Code of Academic Integrity for information about procedures and about what constitutes scholastic dishonesty (<http://deanofstudents.arizona.edu/academicintegrity>).

Plagiarism: Although this course is not writing intensive, plagiarism is strongly discouraged. The plagiarism policies within the Student Code of Academic Integrity will be strictly followed: <http://doc.web.arizona.edu/uapolicies>.

Threatening Behavior: The general policies against threatening behavior by students will be followed: <http://policy.web.arizona.edu/~policy/threaten.shtml>.

SALT Center and Disability Resource Center: Students who are able to use the services of the Strategic Alternatives Technology Center or may have other educational needs may see the professor at any time to discuss accommodations for their needs. However, this should be done at least 1 week prior to the first exam to allow for preparations that may be needed. Students who are registered with the Disability Resource Center must submit appropriate documentation to the instructor if they are requesting reasonable accommodations: <http://drc.arizona.edu/teach/syllabus-statement.html>.

Accessibility and Accommodations: It is the University's goal that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please let me know immediately so that we can discuss options. You are also welcome to contact Disability Resources (520-621-3268) to establish reasonable accommodations. Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

Scholarship Opportunities:

<http://www.saems.org/>
<https://www.azwater.org/>

Changes to the Syllabus: The information contained in the course syllabus, other than the grade and absence policies may be subject to change with reasonable advanced notice as deemed appropriate by the instructor.